

REMARKS

Claims 1-12, 14-16, and 18-20 are pending in the Application. Claims 1, 11, and 16 have been amended. Claims 13 and 17 have been canceled. Applicant notes with appreciation the effort taken by the Examiner to restructure the Office action for purposes of clarity.

Rejection under 35 U.S.C. § 103

Claims 1-20 stand rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 6,690,915 to Ito et al. ("Ito") in view of U.S. Patent No. 6,339,694 to Komara et al. ("Komara") and further in view of U.S. Patent No. 5,802,452 to Grandfield et al. ("Grandfield").

As the PTO recognizes in MPEP § 2143, "[t]o establish a prima facie case of obviousness, ... the prior art reference (or references when combined) must teach or suggest all the claim limitations." (emphasis added). Furthermore, under MPEP § 2142, "[i]f the examiner does not produce a prima facie case, the applicant is under no obligation to submit evidence of nonobviousness." Applicant respectfully submits that the combination of Ito, Komara, and Grandfield fails to teach or suggest each element of claims 1-12, 14-16, and 18-20 as required by MPEP § 2143.

1. **Combination of references fails to teach or suggest all claim elements**

Claims 1-10

Claim 1, as amended, recites in part "adjusting the first gain so that the sampled power level is within a predetermined range of the reference power level; and automatically applying the first gain's adjustment to the second gain to adjust the second gain to equal the first gain without comparing the second gain to the sampled power level."

Applicant submits that not only does Ito fail to teach or suggest the above elements of claim 1, but Ito actually teaches away from them. More specifically, Ito describes (col. 11, line 27 – col. 12, line 50) that:

The signals (downlink signals) transmitted from the base stations 180, 182 and the like are ... amplified through the variable attenuator 108 and amplifier 114 by a particular gain, On the other hand, the signals (uplink signals) transmitted from the mobile station 190 and the like are ... amplified through the amplifier 116 and variable attenuator 110 by a particular gain

The booster 100 controls the gain of the uplink signals and the gain of the downlink signals in accordance with the foregoing expression (4)

The control of the gain of the uplink signals is carried out by transferring a gain setting signal from the operation circuit 112 to the amplifier 116 and variable attenuator 110 to control them. On the other hand, the control of the gain of the downlink signals is carried out by transferring a gain setting signal from the operation circuit 112 to the amplifier 114 and variable attenuator 108 to control them.

The gain of the uplink signals may differ from the gain of the downlink signals. In data communication, data volumes usually differ between downlink channels and uplink channels, and generally, the downlink channels have a greater volume. In such a case, it is possible to operate the booster at minimum power required by providing a difference between the gain of the uplink signals and the gain of the downlink signals.

When varying the gain of the uplink signals, the amplifier 116 and variable attenuator 110 can control the time constant for the variation. Likewise, when varying the gain of the downlink signals, the amplifier 114 and variable attenuator 108 can control the time constant for the variation. It is preferable that the time constant for varying the gain of the uplink signals and that for varying the gain of the downlink signals be increased in order to prevent the effect on the transmission power control of the base station or mobile station.

In other words, Ito clearly describes that the two gains may be different. Furthermore, Ito fails to teach or suggest automatically applying the first gain's adjustment to the second gain to adjust the second gain to equal the first gain without comparing the second gain to the sampled power level. Nowhere can Applicant find any teaching or suggestion in Ito of such a process. Although Ito states possible results of having the gains unequal (col. 14, lines 6-25), it clearly teaches that "[t]he gain of the uplink signals may differ from the gain of the downlink signals" and describes reasons why such a difference is desirable (col. 12, lines 33-40).

In addition, neither Komara nor Grandfield remedies the deficiencies of Ito. Komara is directed to an automatic level control (ALC) for limiting damage to an amplifier (col. 2, lines 44-67) and is not concerned with balancing the uplink and downlink gains as required in claim 1. Grandfield includes multiple automatic gain control (AGC) amplifiers positioned in each input channel, where each AGC amplifier "adjusts the input level to the mixer 16 to assure that the mixer is not driven into compression, ... compensates for variations in input levels between channels such as due to differences in the terrain distance of in the input signals[, and the AGC amplifiers together] ... bring all signals in the channels to the same level so that the intermodulation effects of a stronger signal do not overwhelm a weaker signal." (col. 2, lines 50-59). As

with Komara, the AGC amplifiers of Grandfield are not concerned with balancing the uplink and downlink gains as required in claim 1.

Accordingly, the combination of Ito, Komara, and Grandfield fails to teach or suggest each element of claim 1 as required by MPEP § 2143, and claim 1 is allowable over the cited art. Claims 2-10 depend from and further limit claim 1 and are allowable for at least the same reason as claim 1.

11, 12, 14 and 15

Independent claim 11, as amended, recites in part producing an initialization signal within the repeater; applying the first and second gains to the initialization signal; equalizing the first and second gains if the first and second gains are not equalized; and receiving a signal from the transceiver via the downlink channel after equalizing the first and second gains.

Applicant submits that the combination of Ito, Komara, and Grandfield fails to teach or suggest at least the above elements of claim 11. More specifically, with respect to claim 13 (now incorporated into claim 11), which recited balancing the first and second gains before sampling the received signal, the Office action cites the text of column 13, lines 10-20 of Ito, which states:

The booster 100 controls the balance between the traffic under the booster and the traffic under the base station by adjusting the gain of the booster in accordance with the relationship between I_o and $I_b' = G_b + I_b - L$.

As described above, although the present embodiment extracts from the perch signal the information about the interference quantity I_o in the base station, the information can also be directly received from the base station without receiving the perch signal.

The propagation loss L between the base station and the booster can be obtained by the method described above.

Applicant submits that this text not only fails to teach or suggest equalizing the first and second gains as required by claim 11, but is directed to a balance between traffic under the booster and traffic under the base station. In addition, the cited text fails to teach or suggest producing an initialization signal within the repeater and applying the first and second gains to the initialization signal for purposes of equalizing the gains. Komara and Grandfield fail to remedy the deficiencies of Ito. More specifically, Komara describes an automatic level control (ALC) for limiting damage to an amplifier (col. 2, lines 44-67) and is not concerned with equalizing the uplink and downlink gains. Grandfield includes multiple automatic gain control (AGC) amplifiers positioned in each input channel, where each AGC amplifier “adjusts the input level to the mixer 16 to assure that the mixer is not driven into compression, ... compensates for variations in input levels between channels such as due to differences in the terrain distance of in the input signals[, and the AGC amplifiers together] ... bring all signals in the channels to the same level so that the intermodulation effects of a stronger signal do not overwhelm a weaker signal.” (col. 2, lines 50-59). As with Komara, the AGC amplifiers of Grandfield are not concerned with equalizing the uplink and downlink gains.

Accordingly, the combination of Ito, Komara, and Grandfield fails to teach or suggest each element of claim 11 as required by MPEP § 2143, and claim 11 is allowable over the cited art. Claims 12, 14, and 15 depend from and further limit claim 11 and are allowable for at least the same reason as claim 11.

16 and 18-20

Independent claim 16, as amended, recites in part a gain balancer configured to equalize the first and second gains prior to receiving the first signal.

Applicant submits that the combination of Ito, Komara, and Grandfield fails to teach or suggest at least the above element of claim 16. More specifically, Ito clearly teaches that the two gains can be different and so has no reason to teach or suggest a gain balancer for equalizing the uplink and downlink gains prior to receiving a signal. Komara describes an automatic level control (ALC) for limiting damage to an amplifier (col. 2, lines 44-67) and is not concerned with equalizing the uplink and downlink gains. Grandfield includes multiple automatic gain control (AGC) amplifiers positioned in each input channel, where each AGC amplifier “adjusts the input level to the mixer 16 to assure that the mixer is not driven into compression, ... compensates for variations in input levels between channels such as due to differences in the terrain distance of in the input signals[, and the AGC amplifiers together] ... bring all signals in the channels to the same level so that the intermodulation effects of a stronger signal do not overwhelm a weaker signal.” (col. 2, lines 50-59). As with Komara, the AGC amplifiers of Grandfield are not concerned with equalizing the uplink and downlink gains.

Accordingly, the combination of Ito, Komara, and Grandfield fails to teach or suggest each element of claim 16 as required by MPEP § 2143, and claim 16 is allowable over the cited art. Claims 18-20 depend from and further limit claim 16 and are allowable for at least the same reason as claim 16.

2. There is no motivation to combine the references

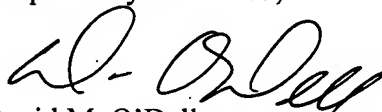
As in the previous Response, Applicant submits that the combination of Ito, Komara, and Grandfield is improper. As described above, Komara describes an automatic level control (ALC) for limiting damage to an amplifier (col. 2, lines 44-67) and is not concerned with balancing the uplink and downlink gains. Grandfield is not even directed to an uplink/downlink scenario, but instead is directed to receiving a signal on one frequency and retransmitting the signal on another frequency (Abstract). To accomplish this, Grandfield includes multiple automatic gain control (AGC) amplifiers positioned in each input channel where each AGC amplifier “adjusts the input level to the

mixer 16 to assure that the mixer is not driven into compression, ... compensates for variations in input levels between channels such as due to differences in the terrain distance of in the input signals[, and the AGC amplifiers together] ... bring all signals in the channels to the same level so that the intermodulation effects of a stronger signal do not overwhelm a weaker signal.” (col. 2, lines 50-59). The ALC of Komara and the AGC amplifiers of Grandfield are directed to solving different problems not only from each other, but also from Ito. Again, Applicant submits that the combination of references is improper and that the pending claims are allowable over the cited art.

Conclusion

As a result of the foregoing, it is respectfully asserted that all pending claims are in condition for allowance. Should the Examiner deem that any further amendment is desirable to place this application in condition for allowance, the Examiner is invited to telephone the undersigned at the below listed telephone number.

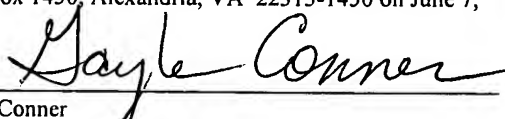
Respectfully submitted,



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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22131-1450 on June 7, 2005.



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